



Nonlinearity in the financial development–income inequality nexus

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ABSTRACT

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The majority of theoretical studies on the relationship between income inequality and financial development argue that financial deepening might be a feasible instrument for improving income distribution. This paper finds that the prediction crucially depends on the stages of financial development that the country is undergoing. The benefits of financial depth only occur if the country has reached a threshold level of financial development. Below this critical value, financial development counteracts income inequality. Our policy implication is that a minimum level of financial development is a necessary precondition for achieving reduction in income inequality through financial development. *Journal of Comparative Economics* 39 (3) (2011) 310–325. Sungshin Women's University, 249-1 Dongsun-dong 3-ga, Seongbuk-gu, Seoul 136-742, Republic of Korea; Tamkang University, 151 Yingzhuan Road, Dansui Dis., New Taipei City 25137, Taiwan.

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1. Introduction

It is widely recognized that capital market imperfections constitute a potentially important mechanism for persistent income inequality. In the presence of investment indivisibilities and locally increasing returns to scale, financial imperfections arising from informational asymmetries and transactions costs produce credit constraints that are particularly binding for small enterprises and the poor that lack collateral, credit histories, and connections. By easing financial frictions and hence by allowing more poor people and entrepreneurs to access and obtain external finance, financial development may improve the allocation of capital and alleviate income inequality.¹ Examples include Greenwood and Jovanovic (1990), Aghion and Bolton (1992, 1997), Banerjee and Newman (1993), Galor and Zeira (1993), Piketty (1997), Matsuyama (2000), Mookherjee and Ray (2003, 2006), Galor and Moav (2004), and Jeong and Townsend (2007, 2008), among others.

However, the empirical evidence on the link between financial development and income inequality remains relatively thin. In a multi-country investigation, Clarke et al. (2006) use data for 83 countries over the period 1960–1995 and find that financial development reduces the level of the Gini coefficient. Beck et al. (2007) show, based on a sample of 72 countries for the period 1960–2005, that financial development disproportionately benefits the poor and hence improves income inequality. By contrast, both Rodriguez-Pose and Tselios (2009) and Gimet and Lagoarde-Segot (2011) find an inequality-increasing

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¹ Theory also indicates that finance can affect inequality through indirect mechanisms. Financial development may improve the efficiency of resource allocation, accelerate economic growth, expand economic opportunities, and boost the labor demand for low- or high-skilled workers with concomitant ramifications on the distribution of income (Gine and Townsend, 2004; Townsend and Ueda, 2006; Beck et al., 2009).

impact of financial development, respectively, in the regions of the European Union over the period 1995–2000 and in a set of 49 countries during the period 1994–2002. Roine et al. (2009) further show that financial development is pro-rich and the effect is strongest at low stages of economic development in a panel of 16 OECD countries over the entire twentieth century. Instead of using a large set of countries, some works focus on country-specific study. Particularly, Ang (2010) appeals to time-series data on India covering the period of 1951–2004, finding that financial development lessens income inequality, but no evidence of a nonlinear effect of finance on inequality. Liang (2006) finds similar results using China's provincial data over 1986–2000. Conversely, Motonishi (2006) analyzes Thai's regional data for the period 1975–1998 and uncovers a negative effect of financial development on the distribution of income.²

In an attempt to fill the gap and contribute to the current empirical literature, this paper explores whether the effect of financial development on income inequality varies across countries with different degrees of financial sector development, *i.e.*, whether there exists financial depth threshold such that the effect of financial development on income inequality changes. A number of theoretical arguments have been advanced for the potential existence of financial development threshold. For example, in Greenwood and Jovanovic (1990), Greenwood and Smith (1997), Smith (2003), Deidda (2006), and Townsend and Ueda (2006) where financial intermediaries arise endogenously to mitigate informational asymmetries, the organization of financial intermediaries is costly at early stages of development, only the rich can access and profit from better financial markets. At this stage, financial development increases growth but disproportionately benefits the rich. However, as the economy grows richer, financial structure becomes more extensive and income inequality across the rich and the poor declines because financial development helps an increasing proportion of the society. In Acemoglu and Zilibotti (1997), the financial sector has to develop up to a certain minimum size before sufficient funds can be pooled together to finance investment projects with higher returns which are indivisible and have minimum size requirements. In a similar vein, Lee (1996) notes that the financial sector expertise is accumulated in a learning-by-doing process where lenders acquire project-specific information by making investment decision, therefore, the financial sector may have to develop to a certain size before the rules of its functioning are sophisticated and regulators are more effective. As another example, in Huybens and Smith (1998, 1999), Azariadas and Smith (1996), Bose (2002), Hung (2003), and Smith (2003) when there are information-type credit market frictions whose severity is endogenous, higher rates of inflation may distort the flows of information and exacerbate credit market imperfections. Furthermore, high inflation can repress financial intermediation by eroding the usefulness of money assets and by leading to policy decisions that distort the financial structure. Thus, an increase in inflation may interfere with the ability of financial sectors to allocate resources, which may be more common in lower income countries with less developed financial markets.

The other argument for potential threshold effects focuses on importance of contracting institutions in shaping the link between financial development and income inequality. For example, in Rajan and Zingales (2003a), Acemoglu et al. (2005), and Perotti and Volpin (2007), in the presence of weak, especially political, institutional environments, *de jure* political representation is dominated by *de facto* political influence. This allows established interests to influence access to finance, implying that higher financial development induced by captured direct controls is likely to hurt the poor who rely on informal or family connections for capital. Rajan and Zingales (2003b) further point out that development of financial system is more likely to benefit the rich and the well connected not only because they have sufficient wealth for collateral (dubbed the tyranny of collateral), but also because the rich are able to prevent small firms from accessing external finance and reduce the ability of the poor to improve their economic well-being. Thus, the poor are often excluded from finance and unable to invest sufficiently in human and physical capital. Furthermore, as demonstrated by Oechslin (2009) and argued by many others, only at the early stages of development when capital is scarce, a powerful group has strong incentives to push for such distortions; at more advanced stages where capital is no longer scarce, all segments of society unanimously support strong contracting institutions.

There is an issue of reverse causation and endogeneity. Income inequality may impact financial development because unequal access to resources affects *de facto* political power (Acemoglu et al., 2005). High income inequality implies skewed political participation that allows the political elite to protect their rents by limiting financial access through direct control or regulatory capture of the financial system and thus suppressing competition and entry (Claessens and Perotti, 2007). However, low income inequality may result in greater political pressures to create a more market-driven type of financial system in order to ensure efficient allocation of resources (Beck et al., 2007). As another example, in Greenwood and Jovanovic's (1990) model, the initial distribution of wealth affects who is able to join financial intermediary coalitions and, therefore, might affect the size of the financial sector. The relationship between financial development and income inequality may also be driven by institutional factors which cause unequal access to political and contractual rights. For example, better property rights protection through the legal system is associated with higher ratio of Private Credit to GDP (Djankov et al., 2007) and larger capital markets (La Porta et al., 1998, 2006). And strong protection of property rights that makes appropriation of the poor's income through rent seeking by the rich impossible is also related to lower income inequality (Sonin, 2003; Gradstein, 2007).

² In related studies, Dollar and Kraay (2002) find that indicators of changes in national institutions and policies, including changes in financial development, do not explain income growth of the poor beyond their effects on aggregate growth. By postulating the impact of financial development working through economic growth, Jalilian and Kirkpatrick (2005), however, find that a positive effect of financial development on income inequality turns negative once a threshold level of economic development is achieved in a panel of 42 countries over 1960–1995.

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